OBITUARIES

ALEXANDER BARRETT KLOTS (1903–1989)

Alexander Barrett Klots sparked, and in some people ignited, a passion for butterflies and moths among generations of naturalists. His published works include a wealth of popular books and articles, natural history literature for young adults, and over 90 peerreviewed scientific papers, including benchmark contributions on pierid and crambid systematics, lepidopteran genitalia, and the biogeography of alpine and arctic butterflies. To many he was best known for his Peterson Field Guide on eastern butterflies, which made North American lepidopterology accessible to the amateur, young student, and professional alike. Klots passed away on 18 April 1989 at the age of 85. His wife of 61 years, Elsie Broughton Klots, Ph.D., passed away in September 1991; they are survived by their two children, Cornelius Ephraim Klots, Ph.D., and Louise Snell, and four grandchildren.

Alexander Barrett was born 12 December 1903 to Dr. Ephraim and Helen Giles Klots in New York City. His father was a highly respected and successful medical practitioner. His upbringing was formal, and in some respects stifling; indeed, his mother had him wear velvet suits with lace collars. His father gave him the name "Bill"—the name most of us would come to know him by-to add a more common air to his childhood.

Like that of so many naturalists, Bill's interest in the outdoors was apparent from an early age. At the age of nine he presented the entomology department at the American Museum of Natural History (AMNH) with his first significant butterfly capture. By age 12 he was a frequent visitor to the offices of Mr. Frank Watson and Dr. Frank Lutz at the American Museum. This was also the period when he met F. Martin Brown, someone who would be a lifelong friend and fellow lepidopterist. Frank Watson took a liking to both "Barrett" and Martin and encouraged them to work on the pierids in the AMNH.

Bill's interests as a boy and young man included fishing and bird hunting, rock climbing, scouting, and golfing. He had the "collecting" affliction many of us share; he saved stamps and coins, kept live reptiles and amphibians, and brought home myriad insects. Except for his hobbies of stamp and coin collecting, most of his activities took Bill outside. As a boy he spent countless hours exploring the countryside around the family's summer cottage on Long Island. In 1917, his mother purchased Penhaven, in Putnam, Connecticut, initially to serve as a private retreat. With time, Penhaven became the family summer home, and eventually the homestead to which Bill and Elsie retired.

Bill attended Trinity School in New York City and Blair Academy in New Jersey. From there it was on to Dartmouth to study medicine; evidently he spent too much time in the school's outing cabins and too little time in classrooms. He got a second chance, at Yale, where he finished three years of course work in engineering before leaving to spend a summer working on a dude ranch in Wyoming, an experience that would forever bond Bill to the West. His free time was spent hiking, taking photographs, and collecting insects. He persuaded his father to buy a horse ranch in Jackson Hole with a friend that Bill had met from Lapland. Although he enjoyed ranching, Bill realized that he wanted to get an advanced degree in entomology studying butterfly systematics.

He wrote William T. Forbes and soon was doing graduate work at Cornell University. His Masters research focused on the taxonomy of the pierid genus Eurema, the very genus Frank Watson had encouraged Bill to study nearly a decade before. While in the final throes of completing his Masters, it was revealed that young Klots had yet to obtain a Bachelor's degree! Bill, now a dedicated student, quickly had this situation remedied and both degrees in hand. He stayed with Forbes to obtain his doctorate, preparing a generic revision of the Pieridae. While at Cornell Bill met and later married Elsie Broughton, one of Needham's students who was among the first women in the country to complete

doctoral work in entomology. Bill and Elsie married in 1927.

Klots graduated in 1931 at the height of the Great Depression, when few universities were hiring. He was offered a very good job in Rochester, New York, at Wards Natural Science Establishment, which was owned by the University of Rochester. Although working there full time, he found time to teach courses at the University of Rochester, where



Alexander Barrett Klots circa 1959 (courtesy Saul Frommer).

he was an associate faculty member. Wards sent Bill out West during summers to collect biological specimens (e.g., insects and fossils), most of which would be sold by the company. He had considerable freedom to pursue his entomological interests while at Wards: he continued publishing on pierid systematics, wrote a widely used manual on how to make an insect collection, and continued his pioneering studies on insect genitalia.

In 1934, Bill was offered a faculty position in the Biology Department at the City College of New York, where he taught courses in biology and field zoology; he also was among the first to offer a course in the new science of ecology. He spent long hours individually tutoring students in entomology, a course that was not formally offered at City College. He made special efforts to get his students outdoors for field trips. Saul Frommer, one of Bill's later students, recalls Klots telling his students that "The ones who jump into the mud with him will get the specimens," almost as clearly as he remembers

taking his first leap into a bog with Bill.

Bill was an outstanding lecturer and teacher; his presentations often featured his photographs or other demonstration material he had accumulated. Although City College was an undergraduate institution with relatively few students interested in biological sciences, several of his students went on to other institutions to pursue advanced degrees and careers studying insects, e.g., Fenja Brodo (Nematocera and arctic insects), Herbert Dalmat (Simuliidae), Saul I. Frommer (Curator of Entomology, University of California, Riverside), and Robert Traub (Siphonaptera). The Biology Department at City College was exceptionally strong in entomologists through much of Bill's tenure: William S. Creighton, Axel L. Melander, A. Glenn Richards, Jr., Herbert Ruckes, Herman T. Spieth, and Asher E. Treat, among others. The entomological atmosphere at City College played a part in Bill's decision to decline a job offer from the American Museum of Natural History early in his career. He was named Emeritus Professor upon his departure from City College in 1965.

William Sargeant, a fellow professor and close friend at City College, introduced Bill to the sport of falconry. Klots and a number of other young men spent many weekends



Bill with his pet peregrines.

at Assateague Island, catching or flying birds. Bill, Elsie, and the two children, Ephraim and Louise, kept several falcons, with as many as four in residence in some years. Susana, one of their peregrines, was featured in Life magazine; the family favorite was a kestrel named Butch that rode with Elsie in taxis, on trains, and even slept on her pillow.

In 1942 Bill enlisted in the Army Air Force and was commissioned as a Captain in the Troop Carrier Command. After learning of Klots' background in entomology, the army asked him to serve in the Sanitary Corps as a Medical Inspector and Malaria Control Officer. His most noteworthy efforts were his efficacy studies of the new wonder pesticide, DDT, in the control of malaria and yellow fever. He authored three papers documenting the effects of DDT on mosquitoes. He was rather cavalier with DDT use—it was not uncommon to find his clothing dusted white with the powder. One of his former students recalls receiving an envelope that Bill had packed and mailed off to him—Bill urging him to give the new pesticide a try.

Bill's studies took him throughout the southeastern United States, as well as Puerto Rico, British Guiana, and Brazil. His wartime letters to Elsie were censored—the army cut away any mention of places, dates, etc. Bill and Elsie found this most bothersome ... so they soon devised an interesting way to let each other know his whereabouts—in each letter he would include mention of several butterfly species. Elsie would take these letters to the American Museum of Natural History, where with a little work in the

collection, she could pin down his general whereabouts.

Bill met Sergeant Roger Tory Peterson in the army. The two men shared several common interests: both were lifelong naturalists, each had a deep interest in birds, and both were studying DDT. (Peterson was evaluating the impact of DDT on birds.) After the war, Klots became a strong adversary of DDT and other broad spectrum pesticides. His early position of advocacy regarding the use of DDT haunted him . . . it seems most ironic that one of Bill's favorite animals and long time family pet, the Peregrine Falcon, was among the most adversely effected by DDT use. The relationship Peterson and Klots established during the war years led the former to invite Bill to author the field guide on butterflies.

Klots' wartime studies of mosquitoes made him a natural choice for a prestigious Canadian Air Force expedition to the high arctic to study biting flies. Klots spent much of the summer of 1952 studying means for controlling the swarming black fly and mosquito



Clockwise from upper left: Bill (wearing glasses) with Frank Lutz, curator at the American Museum of Natural History, during an informal lecture Lutz presented to a group of Boy Scouts; Klots (back, left) climbing what he coined "Oeneis Mountain" in the Wind River Range, Wyoming, with colleagues from the City College of New York; Klots (center) with his closest lifelong friend, C. F. dos Passos (right) and N. D. Riley (left) at the 1953 International Zoological Congress in Copenhagen; Paul Ehrlich (left) and Saul Frommer (center) and Klots (right) visit at Kansas University, ca. 1959; wartime DDT efficacy studies—Klots samples for adult mosquitoes from an army helicopter.

populations on Ellesmere and Cornwallis islands. He returned at the end of the summer with some 40,000 specimens of Nematocera, as well as long series of many arctic butterflies.

Klots' association with the American Museum of Natural History spanned more than 70 years. He kept close ties with Frank Watson and others in the entomology department during his years at Cornell and later at Rochester. After accepting the job at City College, Bill was given space in the museum where he did much of his research for the next 35 years. The AMNH made Bill an Honorary Life Member and a Research Associate of the Museum. Following his retirement from City College in 1965, Bill worked at the AMNH for four years, before leaving New York to live at Penhaven.

Although Bill was trained in revisionary taxonomy and produced a number of important papers and monographs on pierids and crambids, his major contributions were his more popular writings. His books and photographs made entomology, especially lepidopterology, accessible and exciting to children and non-professionals as well as career biologists. Klots and his Field Guide to the Eastern Butterflies triggered my entomological Epiphany. My copy, which I sheepishly asked Bill to sign in 1988 was, of course, in miserable shape—its jacket long gone, the cover stained, spine broken, and pages riddled with penciled notes and highlighting. From the time it was first published in 1951, until Howe's (1975) The Butterflies of North America and the spate of butterfly books that followed, the field guide was the butterfly bible. It remains his most highly cited work.

Klots did much to popularize entomology through his photography. He was one of the early nature photographers to experiment with color and flash macrophotography. He was routinely sought out by publishers—his pictures peppered fillers in Sunday newspapers, magazines such as Life and Family Circle, encyclopedias, Audubon Society publications, and his own books as well as those of others. Unfortunately, much of his color photography was done using Ektachrome® slide films that tend to lose blues and yellows. His slide collection containing some 3000 slides was given to the Connecticut State Museum of Natural History. It contains a large number of topically grouped slides on metamorphosis, mimicry, crypsis, larval defenses, and other themes commonly seen in insects. Another special strength of the collection is the large number of determined larval Macrolepidoptera—a treasure, given the paucity of literature on immatures in this country.

The Field Guide explored much new ground in North American lepidopterology. It highlighted the relevance of ecological life zones to butterfly distributions. Bill was adept at identifying communities and particular plant associations that were likely to signal the presence of a butterfly species. He published several papers and presented numerous lectures on the zoogeography of arctic-alpine areas and bogs. In regard to the latter he wrote (1953:17) "No special environment will better repay the efforts of the butterfly collector." Bogs were a common denominator for three of his lifelong passions: *Boloria*, *Colias*, and crambids. The field guide was influential in drawing attention to the biological

uniqueness of the New Jersey pine barrens.

Another area where Bill made important contributions is the study of genitalia for systematic characters. In particular, he advocated careful study of female structures. His treatment of Lepidoptera in Tuxen's (1956a) Taxonomists' Glossary of Genitalia in

Insects has been his second most cited work.

Bill was exceptional among the North American lepidopterists in that he collected all families, from the most obscure and minute nepticulids to the more familiar groups like the Noctuoidea and Papilionoidea. Early in his career he published several faunal papers treating both Microlepidoptera and Macrolepidoptera. The majority of the specimens captured and pinned by Klots—the legacy of all collectors—are housed at the American Museum of Natural History. A small collection of 2100 butterflies and moths, mostly collected after 1975, went to the University of Connecticut. The taxonomic breadth of his collecting efforts is reflected in the numerous lepidopteran taxa that bear his name, which include members of eight families of butterflies and moths: Acrolophus klotsi Hasbrouck (Acrolophidae); Gnorimoschema klotsi Povolny (Gelechiidae); Acleris klotsi Obratsov and Argyrotaenia klotsi Obratsov (both Tortricidae); Lycaena heteronea klotsi (Field, 1936) (Lycaenidae); Occidryas chalcedona klotsi (dos Passos, 1938) (Nymphalidae); Pyrausta klotsi Munroe (Pyralidae); Ixala klotsi Sperry (Geometridae); and Drasteria klotsi Richards and Lasiestra klotsi Richards (both Noctuidae). Klots patronyms in other insect orders attest to a broad influence Bill had on American entomology. These include the flea, Jellisonia klotsi Traub, which is also the type of its genus; the tephiid wasp, Pseudomethoca klotsi Mickel; and the mosquito, Aedes klotsi Matheson.

Bill was an early and highly respected advocate for butterfly conservation in North America, arguing for habitat preservation as well as responsible collecting practices. Regarding the Schaus' Swallowtail (1951:174) he wrote "Now overcollecting by 'game hog' collectors has again reduced its numbers seriously in its last stand. NONE BUT MALES SHOULD BE COLLECTED, and then, at most, only one per collector. I believe most have enough sportsmanship to help protect the species and refuse to buy specimens

at any price."

Both a charter and honorary life member of the Lepidopterists' Society, he was elected President in 1957 and Vice President in 1974. He also was President of the New York Entomological Society in 1940. From its inception, he served as a Counselor for the Xerces Society. Klots was a fellow of both the Royal Entomological Society and the Linnean Society of London and a member of the Explorers Club, Falconry Club of America, Society of American Naturalists, Society of Sigma Xi, Society of Systematic Zoology, Society of Taxonomists, and South London Entomological and Natural History Society. An authority on nomenclature, he attended two International Zoological Congresses (Co-





Life at Penhaven. Left: Bill in his bug room with his ever present bottle of Coca Cola®. No doubt, Bill spent more of his waking time in this tiny 60 square foot space off of the living room than in any other; right: Bill (circa 1980) dressed for some yard work . . . or perhaps for the baiting and collection of winter moths.

penhagen 1953 and London 1958) as a delegate to the Concilium on Zoological Nomenclature.

Beginning in 1970, Bill's health took a turn for the worse. He had hip operations in 1970 and 1972, neither of which was particularly successful—he was in discomfort for the rest of his life. Bill's penchant for tobacco caught up with him as well. His emphysema limited much of his activity later in life. I carry a vivid image of Bill disconnecting himself from his oxygen long enough to light up and take a few pulls on his pipe. Through the 1970's and early 1980's he continued with his entomological interests, but also read books on American history and mysteries, and attended Red Sox baseball games. Bill had a passion for literature on the American West, evidently his favorite was *The Journals of the Lewis and Clark Expedition*—it was a series Bill read and reread many times during his life.

His influence on me came in my teens, more than 20 years before I would meet him in person. When I finally met Bill, a little more than a year before his death, he was weakened by years of struggle with a bad hip and emphysema. Even then he was a giant to me. I think of him often, not as an old or frail man, but as a tireless collector, or in his words a "field man," slogging knee-deep through some bog, bagging lesser fritillaries and crambids.

I shall remember Bill for many things: in part for his proud and dignified demeanor; for his dry sense of humor, where puns were stacked on puns; for his colorfully eccentric attire that paired suits with moccasins or a favorite, old woolen army cap; but most of all for what he gave me as a young naturalist—knowledge and a passion for entomology—through his field guide, books, and photographs. More than any other North American biologist, his works have catalyzed and fueled the interests of legions of young entomologists. He will be sorely missed and long remembered.

PUBLICATIONS

Bill was a prolific writer as comfortable with revisionary taxonomy as with popular prose. It was his ability to pique interest in students of natural history that will be much of his legacy. Although professionally an entomologist, he published works on a variety of other subjects including arctic life, deserts, falconry, herpetology, mountaineering, wildflowers, and liverworts. His diverse entomological contributions appeared over a 60 year span and included taxonomic monographs, a field guide, several popular books, children's natural history sticker books, scientific and popular articles, text for encyclopedias, and dozens of book reviews. The list that follows was compiled from Bill's personal records and a curriculum vitae that he had prepared at the City College of New York. It is complete for Bill's books (first and English editions only) and Bill's major entomological contributions.

Bill authored 18 books; seven of which were co-written with Elsie, with Elsie as senior

author on three. Several of these were contract works for publishers looking for popular books during the heyday of color publishing, e.g., the series of nine sticker books published by Doubleday Press that were prepared under the aegis of the National Audubon Society; each included a set of color stickers that would be placed into appropriate spaces in the book to yield a splendidly illustrated natural history volume. The field guide was his most successful book with well over 120,000 copies being sold. The World of Butterflies and

Moths, another popular work, appeared in seven different languages.

The following list may be lacking in its coverage of popular articles and does not include his book reviews and contributions to encyclopedias. Bill frequently was called upon for book reviews; as many as twenty five appeared in Natural History Magazine and the Quarterly Review of Biology by the year 1959. The breadth of his expertise as a natural historian is reflected by the subject matter of his reviews-besides Lepidoptera, Bill reviewed books on other insect groups, falconry, hiking and mountaineering, and vertebrate wildlife. Most of his entomological reviews appeared in the Bulletin of the Entomological Society of America, Journal of the New York Entomological Society, and the Quarterly Review of Biology. His abilities as a writer made him popular with encyclopedia publishers; Bill's treatments of insects appeared in Compton's Encyclopedia, Encyclopedia Brittanica, Encyclopedia of Earth Sciences, Grolier Society's Book of Knowledge, and World Book. In the 1956 and 1957 edition of the latter, Klots also contributed a treatment on Falconry.

Books

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1953 Butterflies and moths. Doubleday & Co., New York. 30 pp.

Desert life. Doubleday & Co., New York. 62 pp. [new ed. 1959]. 1954 Metamorphosis. Doubleday & Co., New York. 55 pp. [2nd ed. 1960]. 1955a

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1960 Tropical butterflies. Children's Press, Chicago. 160 pp.

E. B. Klots & A. B. Klots. Wildflowers of the woods. Doubleday Co., Garden 1961a City, New York. 62 pp.

Klots, A. B. & E. B. Klots. 1001 questions answered about insects. Dodd Mead, 1961b New York. 260 pp. 1962

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- 1931b Notes on moths collected at Silver Lake, Chesham, New Hampshire. Psyche 38: 36–37.
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DAVID L. WAGNER, Department of Ecology and Evolutionary Biology, U-Box 43, University of Connecticut, Storrs, Connecticut 06269-3043.